Annexure 1 - Claims Rewritten to Show Amendments

Please amend the claims to read as follows:

1. (Amended) A method of using a computing machine having a memory to assist ~~assisting~~ a human expert in reducing predictable variations in the depth of anesthesia during the administration of a medical anesthesia drug to a patient, the method comprising the step of solving in the computing machine the formula:

$$y = f_p(x) = C_1 \frac{x}{x_1} \Phi_1(x) + C_2 \frac{x}{x_2} \Phi_2(x) + C_3 \frac{x}{x_3} \Phi_3(x)$$

where the coefficients C_1, C_2, C_3, as well as the time periods τ_p (initial time delay after drug infusion) and T_p (time constant representing speed of response) are initiated by assessment of a human expert and entered into the memory of the computing machine.

2. (Amended) The method of claim 1, where the human expert performs the step of assigning a relative value between 1 and 10 to represent the patient's response to infusion of the anesthesia drug, where 1 represents the slowest and 10 represents the fastest, and the relative value is entered into the memory of the computing machine.

3. (Amended) The method of claim 1, wherein typical set points are selected to be approximately $x_1 \cong 50$, $x_2 \cong 100$, and $x_3 \cong 150$, the typical set points being entered into the memory of the computing machine.

4. (Amended) A method of using a computing machine having a memory to determine ~~determining~~ a model that corresponds to a predicted response of a patient to anesthesia drug delivery, the method comprising the steps of:

first determining an initial time delay τ_p after drug infusion for the patient;

first entering a time delay value corresponding to the initial time delay τ_p into the memory of the computing machine;

second determining a time constant T_p representing speed of response of the patient;

second entering a time constant value corresponding to the time constant T_p into the memory of the computing machine; and

third determining a nonlinear static function f_p representing the sensitivity of the patient to a dosage of the anesthesia drug at steady state.

5. (Amended) The method of claim 4, wherein said steps of first, second, and third determining are implemented in a Weiner structure that is computed in the computing machine.

6. (Amended) The method of claim 4, wherein said steps of first, second, and third determining are implemented in a Hammerstein structure that is computed in the computing machine.

7. (Amended) An apparatus ~~A system~~ for determining a predicted response of a patient to the administration of an anesthesia drug, the system comprising:

a first memory for storing patient dynamics information relating to the infusion of a bolus dosage of anesthesia drug, said first memory having a first output for producing a first output signal corresponding to a first anesthesia level;

a second memory for storing patient dynamics information relating to the infusion of a titrated dosage of anesthesia drug, said second memory having a second output for producing a second output signal corresponding to a second anesthesia level;

a third memory for storing patient dynamics information relating to the patient's predicted response to events of surgical stimulation, said third memory having a third output for producing a third output signal corresponding to an anesthesia effect level;

a signal combiner arrangement for receiving the first and second output signals and the anesthesia effect level, and producing at an output thereof a combined anesthesia effect signal;

a limiter coupled to the output of said signal combiner for establishing maximum and minimum values of the combined anesthesia signal; and

a virtual anesthesia monitor for producing an anesthesia value responsive to the combined anesthesia signal.

8. (Amended) The apparatus ~~system~~ of claim 7, wherein the first, second, and third anesthesia levels correspond to respective BIS levels, the anesthesia effect level is a BIS level, and the combined anesthesia signal is a combined BIS level signal.

9. (Amended) The apparatus ~~system~~ of claim 8, wherein the virtual anesthesia monitor is a virtual BIS monitor for producing a BIS value responsive to the combined BIS signal.

10. (Amended) The apparatus ~~system~~ of claim 7, wherein there is further provided a source of known unpredictable disturbances for producing an unpredictable disturbances signal, and said signal combiner arrangement is arranged to receive the unpredictable disturbances signal and the combined anesthesia effect signal is responsive to the unpredictable disturbances signal.